In : Lee, Jeffrey A. and Zobeck, Ted M., 2002, Proceedings of ICAR5/GCTE-SEN Joint Conference, International Center for Arid and Semiarid Lands Studies, Texas Tech University, Lubbock, Texas, USA Publication 02-2 p. 371

Linear dune development along flood-eroded desert margins in central Australia.

Mary C. Bourke, School of Geography, University of Oxford, Mansfield Road, Oxford. (Mary.bourke@geog.ox.ac.uk)

Introduction

During the late Pleistocene and Holocene a series of large floods eroded kilometre-wide swaths of linear dunes (15 m high) along the Simpson Desert margin. The floods emplaced coarse sand and gravel braid channels and backwater clay pans in dune swales. Since abandonment in the late Pleistocene, dunes have reformed across the surface of the paleoflood termini. This paper will describe dune formation along flood eroded desert margins in central Australia.

Methods

Preliminary observations from satellite images (TM, 30 m/ pixel) were verified and mapped in the field. Two transects were surveyed across the Pleistocene (847 m long) and reformed dunes (560 m long). Samples were taken for Optically Stimulated Luminescence, SEM and textural analysis.

Results

The reformed dunes extend directly from the flood-truncated end of the Pleistocene dunes and their swales. They are also linear but are smaller and their spacing closer (see table 1). Preliminary luminescence age estimates indicate a significant lag between the timing of sediment supply and the initiation of dunes.

Average	Pleistocene Dunes	Reformed Dunes
Dune height (m)	15	7.4
Dune width (m)	74.95	89.5
Dune spacing (m)	315	138.7
Swale width (m)	77	49.65
Dune area (m^2)	2505.2	1414.52

Table 1: Dimensions of linear dunes on flood-eroded desert margins in central Australia